

ASSESSMENT OF PRE-SERVICE TVET TEACHERS ATTITUDE TOWARDS GREENING WORKSHOP PRACTICES IN SOUTH -EAST NIGERIA

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ABSTRACT

The study investigated pre-service TVET teachers' attitude towards greening workshop practices in South-East Nigeria. Three research questions and hypotheses guided the study. The descriptive survey research design was adopted in carrying out the study. The population comprised of 980 pre-service TVET teachers in all the Universities that offer TVET courses in south-East Nigeria. Using simple balloting technique, 220 pre-service TVET teachers were randomly selected for the study. For effective investigation, a 4-point scale questionnaire titled "Pre-service Teachers' Attitude towards greening workshop practices face validated by three experts, obtaining reliability coefficient of 0.92 and used for data collection. The data generated was analyzed using mean and standard deviation to answer the three research questions while one hypothesis was tested using t-test statistics at 0.05 level of significance. The result of the study revealed that pre-service teachers had negative attitude towards greening workshop practices irrespective of their gender. Based on the findings, it was recommended that TVET institutions should strengthen linkages and networking programmes in the area of Greening TVET workshop practices.

Keywords: Pre-service TVET Teachers, TVET, Greening TVET, Workshop Practice

INTRODUCTION

The era of going through educational process training for the sake of acquiring knowledge alone is over. Today the best form of education is the one that can equip learners with skills that are adaptable to changing nature of work. In Nigeria, Technical Vocational Education and Training (TVET) is one educational programme that has the mandate and capacity of producing the required and demand driven industrial and technological manpower (Ahobee, n.d.; Musa & Okorieocha, 2012; Ansah & Kissi, 2013; Okorieocha & Duru, (2013). As for UNESCO and ILO (2002) Technical and Vocational Education refers to those aspects of educational process that encompasses general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge related to job in various sectors of economic and social life. Also, Ansah and Kissi (2013) revealed that TVET is meant to furnish people with the technical and professional skills needed for industrial development as well as social progress of any country.

Throughout the course of history, various terms commonly used in specific geographic areas have been used to describe elements of the field that are now conceived as comprising TVET. These include: Apprenticeship Training, Vocational Education, Technical Education, Technical-Vocational Education (TVE), cadence Occupational Education (OE), Vocational Education and Training (VET), Professional and Vocational Education (PVE), Career and Technical Education (CTE), Workforce Education (WE) and Workplace Education (WE) (UNESCO, 2002). Meanwhile, in 1999, at the Second International Congress on Technical and Vocational Education in Seoul and at the 30th session of the General Conference of UNESCO

in Paris, it was agreed to adopt the phrase "Technical and Vocational Education and Training" (TVET) to describe the combined processes of education and training and recognize the common objective of employment as the immediate goal. The congress emphasized that TVET should be a multi-domain concern, requiring collaborative and integrated approaches (UNESCO, 2002).

TVET generally relates to trade in which the learner participates, hence vocational, while technical means the learner directly develops expertise in a particular group of techniques (Tum, 1996). One of the main concerns of the Vocational and Teacher Education programme is skill acquisition. The skills acquired by learners in their course of studies are utilized such that no graduate of any Department will be jobless. The relevant areas include: Agricultural Education, Business Education, Computer Education, Home Economics Education and Industrial Technical Education National Policy on Education (1998).

Challenges such as technological and societal changes, climate change, environmental degradation and scarcity of resources have saddled TVET with responsibilities to develop skills and competencies that can lay concrete on the way towards green economy and society (UNESCO-UNEVOC (2006). Therefore, there is need to focus more on improving TVET programme and make certain its role in promoting sustainability by considering environmental conservation, cultural heritage site preservation and renewable energy production (UNESCO-UNEVOC (2006). Hence, the concept of "Greening Technical and Vocational Education and Training (GTVET)" which comprises environmental, economic and social practices that have been introduced to further highlight the need for a holistic approach UNESCO-UNEVOC (2006).

It is important to note that the terms 'green' refers to sustainable decision making and implementation, factoring in environmental, social and economic factors thereby enabling the overall principle of event greening to sustain workshop practices, which include balance between environmental practices, social development practices and economic practices, Majumdar S, et al. (2004). On the other hand, environmental protection (planet) refers to reducing the ecological footprint of the event through the responsible management of resources such as energy and water. While Social development (people) refers to fair and beneficial business practices with regard to labour and the community in the region in which the event is held. Economic value (prosperity) however, refers to the financial benefit of the event, as well as the real economic impact or benefit enjoyed by the host region. To Majumdar, S. (2007) considerable interactions among the dimensions of sustainable development in terms of economic, social and environmental factors are very vital in order to underpin the interdependence that exists between them.

UNESCO-UNEVOC (2007), focused TVET on preparing learners for occupational fields and increasing their participation in the world of work, contributes immensely to low carbon economy transitions and building climate-resilient society. In view of this, its expected that human activities, as well as occupations in the work place, should be carried out in a way that is sustainable and environmentally welcoming (UNESCO-UNEVOC, 2007). GTVET is therefore expected to provide trainers with up to date understanding on environmental issues and on green technologies and make education and training which deals with the preparation of teachers and trainers her first priorities in skills response strategies (Strietska-Ilina et al. 2011,). UNESCO-UNEVOC (2006), emphasises that "Green" skills and knowledge have to be implemented and applied in theory and practice. Hence, "Green" workshop practices should be implemented across the dimensions of sustainable development as Majumdar (2007) maintained that interactions among these dimensions (economic, social and environmental) factors are vital. Similarly workshop practices are those positive choices of attitude that gear

learners towards greening TVET and upholding sustainability. In the context of this study, these workshop practices include – environmental, economic and social practices.

Researchers have put forward variety of observations on greening education for sustainability, Keles (2017). For example, Moore (2005) maintains that sustainability awareness and training should include social, ecological and economic components of how pre-service teachers think about environmental problems, effective teaching strategies, different world views and perspectives and human impact on ecosystems should be discussed. Agreeably Fleischer (2011); Lautensach and Lautensach (2010) recommend curriculum that focuses on values, attitudes and beliefs to make easy sustainable behavior and environmental fairness; while Stuckey (2016) is of the opening that protection of environment, positive attitude about environmentally friendly practices and expecting positive results from these practices can facilitate the demonstration of environmentally positive behaviors. Meanwhile, many authors have recognized that attitudinal change is a major requirement for sustainability (Dunlap, Van Liere, Mertig, & Jones, 2000; Bonnes & Bonaiuto, 2002; DEFRA, 2003).

Environmental and sustainability education will influence the attitude of pre-service teacher positively such that on graduation, they will be enabled to inculcate activities tending towards environmental, economic and social sustainability in their workplaces (Ferreira, Ryan, Davis, Cavanagh, & Thomas, 2009; Ferreira, Ryan, & Tilbury, 2006). Keles (2017) revealed that up till today few teacher education institutions have built-in sustainability teaching into pre-service teacher training courses. Sequel to this, many pre-service teachers leave school without grasping how to fully carry on sustainability practices in the work places (Miles et al., 2006).

From literature, pre-service teachers' attitudes towards sustainability in recent years centered on social gender equality within the framework of the targets of sustainable development (Sharma, 2016). Meanwhile Evans, Stevenson, Ferreira, & Davis Evans, Tomas, & Woods (2016) focused on the outcome of pre-service teachers' attitudes towards Environmental and Sustainable Development (ESD). Hence it is proven that the attitude of pre-service teachers affects how they conventionalize education for sustainability (Evans, Whitehouse, & Hickey, 2012); and the development of sustainability kit (Gardner, 2017).

Consequently, attitude is seen as a person's disposition as it relates to character manifestation which could be positive or negative Ajzen (2002). However, attitudes can be prejudiced by consumption choice behavior (Keles 2017) and this is the reason someone's desire may be well stronger than beliefs, and consequently such tend to a negative attitude towards sustainability which is a resultant effect of his or her pattern of believe about sustainability. Hence, training gearing towards sustainability plays an important role in the development of positive attitudes towards sustainability (Watling & Zhou, 2011). Therefore, pre-service teachers having positive attitudes towards greening TVET workshop practices and sustainability at large can educate their prospective students as individuals with positive attitudes and behaviors towards sustainable life with their classroom applications. Owing to this, tractable pre-service teachers are needed in order to make sustainability practices more widespread Ajzen (2002). It appears necessary to determine pre-service teachers' cognitive and affective characteristics in order to make comprehensive revision of teacher training programs. Attitude is one of these characteristics. Therefore, the study aims to investigate pre-service teachers' attitude towards greening TVET workshop practices in South- East Nigeria.

Purpose of the Study

The general purpose of the study is to assess the pre-service TVET teachers' attitude towards greening workshop practices in South-East Nigeria. Specifically, the study determined:

1. Pre-service TVET teachers' attitude towards workshop environmental practices
2. Pre-service TVET teachers' attitude towards workshop social practices
3. Pre-service TVET teachers' attitude towards workshop economic practices

Research Questions

The following research questions guided the study:

1. What is the pre-service TVET teachers' attitude towards workshop environmental practices?
2. What is the pre-service TVET teachers' attitude towards workshop social practices?
3. What is the pre-service TVET teachers' attitude towards workshop economic practices?

Hypothesis

There is no significant gender difference in the mean responses of pre-service TVET teachers on their attitude towards greening workshop environmental, social and economic practices in South-East Nigeria.

METHODOLOGY

Descriptive survey research design was adopted for this study. The design is appropriate for this study because it provided the researcher with opportunity of eliciting opinions from the respondents in the areas of the study using questionnaire. The population of the study comprised of 980 pre-service TVET teachers in all the Universities that offer TVET courses in south east Nigeria. Using simple balloting technique, 220 participants made up of 105 males and 115 female pre-service TVET teachers were randomly selected for the study. Four point response scale made up of 31 structured questionnaire items developed from literature was used for data collection. The instrument is divided into three sections A, B and C, each section dealt with one of the three research questions developed. The instrument was face validated by three experts, two from Department of Industrial Technical Education and one from Computer Education, University of Nigeria, Nsukka. The experts were requested to proffer suggestions for improving the instrument in meeting the purpose of the study. The corrections suggested were effected and integrated into the modified copy of the instrument which was used for data collection. A Cronbach Alpha reliability technique was adopted for determining the internal consistency of the instrument. A reliability coefficient of 0.91 was obtained. This indicated high positive relationship among the opinions of the respondents. Total of 220 copies of the questionnaire were administered to the respondents by the researcher through personal contact with the help of five research assistants. The data collected was analyzed using mean to answer the research questions, standard deviation was used in determining how close or otherwise the respondents were to the mean and to one another in their responses. On the other hand, the independent sample t-test was used to test the hypothesis at significance level of 0.05. In order to answer the research questions, the decision rule for each item of the questionnaire was based on real limit values ranging from 3.50 to 4.00 for strongly agree (SA), 2.50 to 3.49 for agree (A), 1.50 to 2.49 for disagree (D) and 1.00 to 1.45 for strongly disagree (SD). For the hypothesis, if the probability value is less than or equal to the alpha value of 0.05 it will be rejected, otherwise it will be accepted.

Results

Results for the study were obtained from answers given to research questions through data collected and analyzed.

Research Question 1: What is the pre-service TVET teachers' attitude towards workshop environmental practices?

Table 1: Mean and standard deviation of respondents on the pre-service TVET teachers' attitude towards workshop environmental practices(N=220)

N	What is the pre-service TVET teachers' attitude towards workshop environmental practices?	Mean	SD	Decision
1	I conduct routine checks on alternating current (AC) and lightening routinely	1.495	0.50	Disagree
2	I use email and internet for internal and external communication instead of paper memos and faxes	1.545	0.77	Disagree
3	I regularly conduct inspection of plumbing fixtures to prevent leaks and dripping	1.500	0.80	Disagree
4	I install water serving faucet e.g. timer taps in toilets, water saving, self -stopping taps	1.650	0.94	Disagree
5	I reduce flushing system volume	2.795	0.84	Agree
6	I increase awareness of environmental issues through posters, leaf lets and labels	1.736	0.80	Disagree
7	I encourage environmentally friendly workshop products that are certified and credible.	3.081	1.02	Agree
8	I encourage the use of goods that can be reused or recycled.	1.527	0.86	Disagree
9	I encourage the use of workshop goods with minimum toxic chemicals.	1.768	0.74	Disagree
10	I avoid the use of disposable products with a single use, such as paper cups or serviettes.	1.781	0.76	Disagree
11	I ensure that I abided by all health and safety standards when working in the workshop	2.863	0.75	Agree
12	I only print when necessary, and print double-sided.	1.931	0.90	Disagree
13	I distribute workshop presentations electronically rather than in printed format.	1.422	0.60	Disagree
14	I print on the back side of used paper.	1.459	0.74	Disagree
15	I avoid disposable items; rather use reusable food-and-beverage containers and cutlery.	1.395	0.69	Disagree
16	I ensure that the bins for different types of waste are always placed right next to each other.	1.495	0.81	Disagree
17	I ensure that the waste bins are well marked with clear instructions, preferably colour-coded.	1.381	0.69	Disagree

Key: M= Mean, SD=Standard Deviation, N=Number of respondents

Table 1 shows that items (5, 7 and 11) each had a mean score above 2.50 which is the cut off mean for agreement level with any given item, indicating that the pre-service TVET teachers attitude towards workshop environmental practices for those items is positive. Nevertheless, the rest of the items (1 to 4, 5, 8 to 10 and 12 to17) had a mean score below 2.50 which shows that the attitude of pre-service TVET teachers towards workshop environmental practices for those items majority is negative.

Research Question 2: What is the pre-service TVET teachers' attitude towards workshop social practices?

Table 2: Mean and standard deviation of respondents on the pre-service TVET teachers' attitudes towards workshop social practices (N=220)

S/N	What is the pre-service TVET teachers' attitude towards workshop social practices?	Mean	SD	Decision
18	I provide equal opportunity and outcomes for all the workshop members	1.55 4	0.83	Disagree
19	I ensure that the basic workshop needs of fellow students are met	1.43 6	0.81	Disagree
20	I provide processes and structures that promote connectedness among fellow workshop users	1.66 3	0.93	Disagree
21	I promote and encourages diversity among fellow students and staff in the workshop	1.60 9	0.78	Disagree
22	I Provide democratic process and accountable governing structure when am in charge in the workshop	1.40 4	0.61	Disagree
23	I value working in groups over individuals	2.23 6	1.02	Disagree

Key: M= Mean, SD=Standard Deviation, N=Number of respondents

Table 2 shows that all the items, (18 to 23) each had a mean score below 2.50, indicating that the pre-service TVET teachers' attitude towards workshop social practices for those items is negative. In other words, the pre-service TVET teachers do not observe the listed social practices in the workshop.

Research Question 3: What is the pre-service TVET teachers' attitude towards workshop economic practices?

Table 3: Mean and standard deviation of respondents on the pre-service TVET teachers' attitude towards workshop economic practices (N=220)

S/N	What is the pre-service TVET teachers' attitude towards workshop economic practices?	Mean	SD	Decision
24	I switch on AC only 30 minutes before any workshop activities	2.34 1	1.0 5	Disagree
25	I ensure that windows and doors are closed when air conditioners are operating	2.91 8	1.0 7	Agree
26	I use energy-saving lightening bulbs in the workshop	1.89 5	1.0 3	Disagree
27	I unplug all equipment from socket when not in use	2.07 7	1.0 8	Disagree
28	omote the procurement of local workshop goods and services	1.96 8	0.8 8	Disagree
29	I switch off workshop lights when not needed	2.70 5	0.9 8	Agree
30	I switch off workshop sockets when not needed	1.96 4	0.9 1	Disagree
31	I turn off water taps and encouraged others to turn	3.18	1.4	Agree

	off taps when they finish washing hands	2	6	
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Key: **M= Mean, SD=Standard Deviation, N=Number of respondents**

Table 3 shows that items (25, 29 and 31) each had a mean score of above 2.50 which is the cut off mean for agreement level for any given item, indicating that the pre-service TVET teachers attitude towards workshop economic practices for those items is positive. Nevertheless, the rest of the items (24, 26 to 28, and 30) had a mean score below 2.50 which shows that the attitude of pre-service TVET teachers towards workshop economic practices for those items is negative.

Hypothesis

There is no significant gender difference in the mean responses of pre-service TVET teachers on their attitude towards greening workshop environmental, social and economic practices in South-East Nigeria.

Table 4: The t-test Analysis of male and female pre-service TVET teachers on their attitude towards greening workshop practices

Variables	Respondents	N	Mean	SD	Df	t	Sig.	Decision
Environmental Practices	Male	105	27.60	6.11	218	-.549	.583	NS
	Female	115	28.04	5.86	218			
Social Practices	Male	105	10.04	2.81	218	.596	.552	NS
	Female	115	9.78	3.47	218			
Economic Practices	Male	105	17.33	3.45	218	1.592	.113	NS
	Female	115	16.60	3.38	218			

*Key: N = number of respondents, SD = standard deviation, Sig = Significance, df=Degree of freedom, t=t-test

The t-test result of Table 4 shows the clustered mean responses of pre-service TVET teachers according to gender workshop environmental practices (M = 27.60; F = 28.04), workshop social practices (M = 10.04; F = 9.78) and workshop economic practices (M = 17.33; F = 16.60) respectively. The result however showed that the p-value of 0.583 for environmental practices, 0.552 for social practices and 0.113 for economic practices are greater than the alpha value of 0.05; hence the null hypothesis is upheld. This means that the mean responses between the male and female pre-service teachers did not significantly differ as regards their attitude towards greening workshop environmental, social and economic practices.

DISCUSSIONS

The result revealed that few pre-service teachers attitude towards workshop environmental practices are positive on reducing flushing system volume, encouraging environmentally friendly workshop products that are certified and credible. Also abided by all health and safety standards when working in the workshop. This is in agreement with Keles (2017) who stated that up till today few teachers' education institutions have built-in sustainability teaching into

pre-service teacher training courses. Hence many leave school without grasping how to fully carry on sustainability practices in the workplaces. However, Lealfilho, shiel do paco and brandil (2015) asserted that institutions like War-work University that fully practice environmental sustainability carried out some practices such as recycling and waste disposal practices. Some institutions waste is converted to electricity and recycled, while also rolling reduction in absolute water consumption. Likewise Campus supermarkets provides a wide selection of seasonal produce and install water refilling stations at all facilities across campus. The author further posit that Central European University in Hungary has one of its greening activities is the maintenance of the Campus buildings to ensure that heating, cooling and air circulation systems are performing at optimum efficiency in order to encourage energy and resources conservation.

The study also revealed that pre-service teachers attitude toward workshop social practices was negative. This is in agreement with Gardener (2017) which asserted that the attitude of pre-service teachers affects how they conventionalized education for sustainability. Kele (2017) said that attitude can be prejudiced by consumption choice behavior. This is the reason someone's desire may be stronger than his/her beliefs and consequently tend to have negative attitude toward sustainability; which is a resultant effect of his or her pattern of believe about sustainability. Hence, training gearing toward sustainability plays an important role in the development of positive attitude towards greening TVET workshop practices and sustainability. At large, this can educate prospective students as individual with positive attitudes and behavior towards sustainable life with classroom applications.

The study further revealed that few of the pre-service TVET teachers' attitude towards workshop economic practice is positive by ensuring that windows and doors are closed when air conditioners are operating; switching off workshop lights when not needed and turning off water taps and encouraging others to turn off taps when they finish washing hands. This is in line with Gardener (2017) that the attitude of pre-service teachers should be positive such that upon graduation they should be able to inculcate activities tending toward environmental, economic and social sustainabilities in their work places. Where there is waste there will be no economic development and sustainability. Economic sustainability implies a system of production that satisfies present consumption levels without compromising future needs.

CONCLUSION

To yield maximum output, TVET institutions should ensure that awareness is created for pre-service teachers on greening workshop practices for environmental, economic and social sustainability in the overall use of energy, waste, water and material to maximize campus environmental, social and economic impact. Another important measure is to ensure awareness is created within campuses and communities and the introduction of information on greening and sustainability in the curriculum of institutions as a long term goal

RECOMMENDATIONS

1. Awareness should be created by institution ant government on greening workshops, campus communities, and introduction of information about sustainability in all aspect of college curriculum.
2. Students should be encouraged to participate through courses, internship and projects works on greening practices in different fields or areas of endeavor

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